

### Abstract

The present invention relates to eukaryotic host cells having modified oligosaccharides which may be modified further by heterologous expression of a set of glycosyltransferases, sugar transporters and mannosidases to become host-

5 strains for the production of mammalian, *e.g.*, human therapeutic glycoproteins. The process provides an engineered host cell which can be used to express and target any desirable gene(s) involved in glycosylation. Host cells with modified lipid-linked oligosaccharides are created or selected. *N*-glycans made in the engineered host cells exhibit GnTIII activity, which produce bisected *N*-glycan

10 structures and may be modified further by heterologous expression of one or more enzymes, *e.g.*, glycosyltransferases, sugar transporters and mannosidases, to yield human-like glycoproteins. For the production of therapeutic proteins, this method may be adapted to engineer cell lines in which any desired glycosylation structure may be obtained.